

REMARKS/ARGUMENTS

The claims are 3-4, 6-9 and 11-17. Although the Examiner indicated on page 2 of the Office Action that claim 13 was amended in Applicant's November 30, 2007 Amendment, presumably the Examiner meant that claim 15 was amended as claim 13 had not been amended and claim 15 was not mentioned by the Examiner.

In any event, claims 1-5, 8-10 and 12-15 were rejected under 35 U.S.C. 102(b) as being anticipated by *West U.S. Patent No. 4,963,018*. The remaining claims 3, 4, 6-9 and 11-17 were rejected under 35 U.S.C. 103(a) as being unpatentable over *West* in view of the *Tiziani et al.* article cited in Applicant's Second Supplemental Information Disclosure Statement.

Essentially the Examiner's position was that *West* discloses the device for producing three-dimensional surface images of internal surfaces of cylinders and engine blocks recited in the claims, except for referring to a three-dimensional image, that *Tiziani et al.* teaches a microscope capable of creating a three-

dimensional confocal image of an object using a Nipkow disk, a beam splitter, a light source, and a CCD camera, and that it would have been obvious to one of ordinary skill in the art at the time the invention was made to have the *West* device include the elements of *Tiziani et al.* for the purpose of creating an image to determine the structure of the wall of an engine cylinder and the presence of any corrosion.

The Examiner also indicated that although he agrees that *West* fails to disclose three-dimensional confocal imaging, in the Examiner's view, *Tiziani et al.* provides the teachings for the three-dimensional confocal imaging, and that when the additional elements taught by *Tiziani et al.* are included in the *West* reference, all structural elements in the claim language are taught. Therefore, in the Examiner's view, the device would be capable of performing all of the claimed functional elements of the claim language. The Examiner also continued to take the position that *West* teaches microscopy. According to the Examiner, microscopy is defined as an optical measurement consisting of lens or a combination of lenses for making enlarged

images of minute objects, and West fits this definition according to the Examiner because it includes lenses and provides an enlarged view of the side wall of the engine cylinder.

This rejection is respectfully traversed and reconsideration is expressly requested.

As set forth in claim 16, Applicant's invention provides a device for producing three-dimensional surface images of internal surfaces of cylinders in engine blocks. The device includes a computer-controlled confocal microscope having a microscope body, a tube attached to the microscope body, and a lens, which is preceded by a deflection optical system having a horizontal translator. The deflection optical system deflects the beam by less than 90 degrees. The device further includes a device for attaching and adjusting the computer-controlled confocal microscope to be moved into the cylinders in engine blocks to measure the internal surface of the cylinders. In this way, Applicant's invention provides a device for destruction-free three-dimensional inspection of internal walls, particularly

internal surfaces of cylinders, using computer-controlled confocal microscopes.

Although the Examiner has taken the position that the combination of *West* and *Tiziani et al.*, i.e. the exchange of the optic in the *West* equipment would be obvious from the confocal microscopes disclosed by *Tiziani et al.* and could be undertaken without further thought, it is respectfully submitted that the Examiner's position is incorrect.

First, it should be noted that the optical measuring head in *West* rotates around an axis within the cylinder to be measured, which axis is located in the middle axis of the cylinder. If one skilled in the art would replace the measuring head used in *West* by the lens (1), the prism (2), and the positioning element (3) of Applicant's device as recited in claim 16, the rotation axis and cylinder axis would no longer be identical.

In cylinders with a small diameter (79 mm) and in the usual

lenses with a balance length of 45 mm and the deflection (re-routing) prism arranged behind it, *West's* method would not be easily possible. Therefore, it is respectfully submitted that one skilled in the art has to engage in inventive activity in order to modify the measuring microscope in such a way that in small cylinders three-dimensional surface pictures may also be included, which is extremely important because motors are becoming more and more economical and the cylinders also have to be designed smaller.

According to Applicant's invention as recited in claim 16, and as shown in FIG. 1, three-dimensional surface pictures in small cylinders may be obtained by having the deflection prism deflect the beam by less than 90 degrees. Only by this inclined guiding of the beam is it possible to successfully make use of the prism in the narrow cylinder space. The Examiner has never indicated why one skilled in the art would be motivated to modify *West* to achieve this new guiding of the beam, which is nowhere disclosed by either *West* or *Tiziani et al.* relied on by the Examiner. Therefore, it is respectfully submitted that the

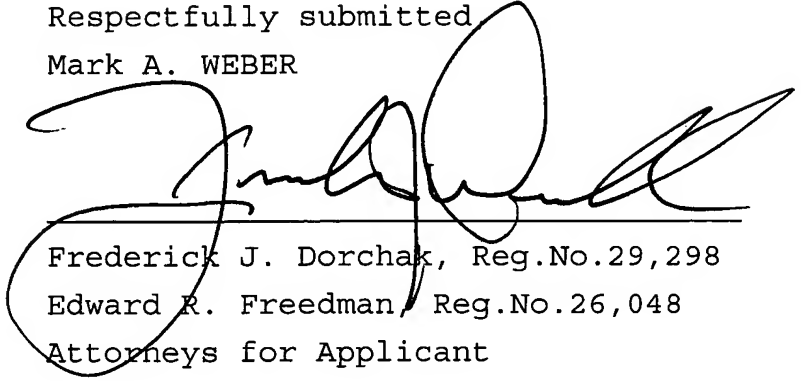
Examiner is engaging in hindsight when making the proposed combination when one skilled in the art would have no reason to do so or be given any guidance toward obtaining the deflection optical system that deflects the beam by less than 90 degrees from anything taught by *West* or *Tiziani et al.*

Accordingly, it is respectfully submitted that claim 16 together with claims 3-4, 6-9, 11-15 and 17, which depend directly or indirectly thereon, contain patentable and unobvious subject matter.

In view of the foregoing, it is respectfully requested that the claims be allowed and that this case be passed to issue.

Respectfully submitted

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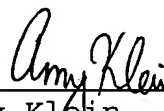
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Enclosure:

Copy of Petition for three-month Extension of Time

I hereby certify that this correspondence is being deposited with the U.S. Postal Service as first class mail in an envelope addressed to: Commissioner of Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on July 22, 2008.



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